made, the concern is principally oriented towards managing operations efficiently in terms of organizational responsibilities. Frugal use of the IHSs, is a subordinate concern which is only likely to become important insofar as it directly affects the cost effectiveness of the organization and can be manipulated to improve it. Thus, frugal usage, such as overnight batch runs, overnight electronic mail, 30 minute turnarounds on compiles, or meticulous attention to archiving and data destruction may be highly worthwhile to users if they were able to use the resultant savings elsewhere.

Currently, accounting for IHS resource utilization is provided by ODP's Project Activity Reports (PAR), which are provided monthly to the user, with higher level summaries to management. The PAR system provides a basis for negotiating changes in budgeted expenditures for IHS resources. However, because the rebudgeting process is relatively cumbersome, and involves senior management, it tends to be used only for major variations from planned activity levels.

To provide the basis for frugal usage in the planned environment of the late eighties, an accounting system is needed with a comprehensive tariff schedule comparable to those in use by commercial service organizations. The tariff schedule would accurately reflect on-line, batch, data base and communications activities. Such tariffs reduce peak processing loading and storage demands through such devices as reduced rates for lower priority processing and space time charges for allocated DASD space. The latter motivates the archiving of data when its access likelihood becomes low. The initial stages of assessment of such a system, to be called RAPS (Resource Accounting and Pricing System), have been started by ODP.

c. Archiving and Vital Record Backup

The overriding consideration in designing most systems has been "get it up and running"; *~~archiving~~ *life cycle management considerations have been considered secondarily, if at all. As a consequence, tape backup has been substituted for archiving. All major electronic files are backed up on tape on a frequent, periodic basis. ~~These backup tapes constitute the archive. They are not appropriately such, however, because there is no "record" copy~~. Each successive tape backup typically has over 90 percent data commonality with its predecessor. Thus the same data can be stored hundreds of times, with ever-changing relationships to other data. As a consequence, there is a breakdown of the concepts of a "record" and a "record copy", which are the cornerstones of paper records management.

Backup-as-~~archive~~ vital record is also presenting us with the prospect of serious information recovery problems. To be usable, the backup tapes have to be in the same format as that with which the existing

*vital record **vital record

machinery and software deals. Many of the backup tapes now in * ~~archival~~ storage are not useable. The same DBMS with which the data on the tape was created usually has to be available for readout. This frequently implies the availability of an obsolete processor upon which the DBMS's ran, as well as the correct version of the DBMS. Many of the tapes now in the Agency ** ~~archival~~ storage are not readable because either the DBMS or a compatible processor is no longer in use in the Agency. Many more will fall into this situation in the near future as we go to the next generation of processors and DBMSs. In addition, the tapes have a limited shelf life of approximately 20 years. If they are to be retained beyond such period, they have to be rewritten. Implied, by our current procedures, is a major processing operation, beginning in a few years, to continuously rewrite tapes.

*vital record or

With the expenditure of enough time and money, any tape can be read, of course. However, a viable * archive system has to provide facile and rapid recovery of data. It also must retrieve the data in an intelligible format. These requirements necessitate the development of an archival facility, design and archival interface requirements for new systems, and a general purpose Agency archival system, in addition to a vital record tape backup system.

d. Standards

Standards relative to IHSs fall into two principal areas: policies, procedures, and documentation standards for DA&I of new facilities, and hardware and interface standards relative to acquisition of off-the-shelf hardware and software. The principal area of concern is the former; although numerous standards have been developed and promulgated for component use, the Agency has no Agency-wide standards. Even at the component level, there is no complete set of standards. With respect to hardware and interface standards, the Agency takes advantage of and conforms to the comprehensive set of Federal Information Processor Standards (FIPS) issued by the Institute of Computer Science and Technology (ICST) of the Department of Commerce. Exceptions, of course, are taken to these when needed to take advantage of new technological opportunities or to implement unique interfaces.

Under the aegis of the Agency Standards Committee, chaired by the IHSA, an effort has been pursued to develop Agency-wide DA&I standards. A draft Information System Acquisition Policy standard has been prepared, and the development of other subsidiary standards has been started. Included in these subsidiary standards will be documentation standards and Data Item Definitions. A standard set of the latter for use in procurements will assure that the Agency is proceeding in a reasonably uniform manner with respect to its contracted IHS developmental efforts.